**COURSE DESCRIPTION**

**Course Title:** PA Habitat and Land Ecology

**Course Number:** 00370

**Course Prerequisites:** None

**Course Description:** This course focuses on Pennsylvania habitats, their biotic and abiotic parts, identification, taxonomy, anatomy, physiology, growth and reproduction. The basic principles of forest habitats, habitat management, and environmental protection are discussed. Complexities of land ecology, soil types and characteristics, and landform evaluations are also studied including conservation perspectives. Relevant lab activities will be incorporated throughout, utilizing scientific inquiry and appropriate technology. Classroom studies are combined with field exercise.

**Suggested Grade Level**: Grades 9-12

**Length of Course:** One Semester

**Units of Credit:** .5

**PDE Certification and Staffing Policies and Guidelines (CSPG) Required Teacher Certifications:**

CSPG 32 Biology; CSPG 43 Environmental Education; CSPG 46 General Science 7-12

To find the CSPG information, go to [CSPG](https://www.education.pa.gov/Educators/Certification/Staffing%20Guidelines/Pages/default.aspx)

**Certification verified by the WCSD Human Resources Department:** Yes No

**WCSD STUDENT DATA SYSTEM INFORMATION**

**Course Level:** Academic

**Mark Types:** Check all that apply.

F – Final Average MP – Marking Period EXM – Final Exam

**GPA Type**:  GPAEL-GPA Elementary  GPAML-GPA for Middle Level  NHS-National Honor Society

UGPA-Non-Weighted Grade Point Average  GPA-Weighted Grade Point Average

**State Course Code**: 03003

To find the State Course Code, go to [State Course Code](https://nces.ed.gov/forum/sced.asp), download the Excel file for *SCED*, click on SCED 6.0 tab, and choose the correct code that corresponds with the course.

**TEXTBOOKS AND SUPPLEMENTAL MATERIALS**

**Board Approved Textbooks, Software, and Materials:**

**Title:** n/a

**Publisher:** n/a

**ISBN #:**  n/a

**Copyright Date:** n/a

**WCSD Board Approval Date:** n/a

**Supplemental Materials:** Envirothon website content: [www.envirothonpa.org/station/forestry/](http://www.envirothonpa.org/station/forestry/) and [www.envirothonpa.org/station/soils-and-land-use/](http://www.envirothonpa.org/station/soils-and-land-use/) ;PA DCNR content

**Curriculum Document**

**WCSD Board Approval:**

**Date Finalized:** 4/2/2025

**Date Approved:**  2/5/2025

**Implementation Year:** 2025-2026

**SPECIAL EDUCATION, 504, and GIFTED REQUIREMENTS**

The teacher shall make appropriate modifications to instruction and assessment based on a student’s Individual Education Plan (IEP), Chapter 15 Section 504 Plan (504), and/or Gifted Individual Education Plan (GIEP).

**SCOPE AND SEQUENCE OF CONTENT AND CONCEPTS**

**Marking Period 1**

* Trees
* Basic Soil Ecology Knowledge
* Forest Ecology
* Understanding Maps, Surveys, and Landforms

**Marking Period 2**

* Forestry Resources, Management, and Protection
* Community Forestry
* Ecological Land Use
* Decision Making and Protections of Soils and Land Ecological Systems

**Marking Period 3**

* Trees
* Basic Soil Ecology Knowledge
* Forest Ecology
* Understanding Maps, Surveys, and Landforms

**Marking Period 4**

* Forestry Resources, Management, and Protection
* Community Forestry
* Ecological Land Use
* Decision Making and Protections of Soils and Land Ecological Systems

**Standards/Eligible Content and Skills**

| **Performance Indicator** | **PA Core Standard and/or Eligible Content** | **Marking Period Taught** |
| --- | --- | --- |
| Explain the characteristics of life common to all organisms. | SCT.10.3.1.10.A1 | MP1, MP3 |
| Investigate the spatial relationships of organisms’ anatomical features using specimens, models, or computer programs. | SCT.10.3.1.10.A8 | MP1, MP3 |
| Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy. | SCI.3.1.9-12.E | MP1, MP3 |
| Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules. | SCI.3.1.9-12.F | MP1, MP3 |
| Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy. | SCI.3.1.9-12.G | MP1, MP3 |
| Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem. | SCI.3.1.9-12.H | MP2, MP4 |
| Use mathematical and/or computational representations to support explanations of factors that affect carrying capacities of ecosystems at different scales. | SCI.3.1.9-12.I | MP1, MP2  MP3, MP4 |
| Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions. | SCI.3.1.9-12.J | MP1, MP3 |
| Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales. | SCI.3.1.9-12.L | MP2, MP4 |
| Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem. | SCI.3.1.9-12.M | MP1, MP2  MP3, MP4 |
| Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity. | SCI.3.1.9-12.N | MP1, MP2  MP3, MP4 |
| Evaluate the evidence for the role of group behavior on individual and species’ chances to survive and reproduce. | SCI.3.1.9-12.O | MP2, MP4 |
| Create or revise a simulation to test a solution to mitigate the adverse impacts of human activity on biodiversity. | SCI.3.1.9-12.V | MP2, MP4 |
| Evaluate the evidence supporting claims that changes in environmental conditions may result in (1)increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species. | SCI.3.1.9-12.X | MP1, MP2  MP3, MP4 |
| Analyze and interpret how issues, trends, technologies, and policies impact agricultural, food, and environmental systems and resources. | SCI.3.4.9-12.A | MP1, MP2  MP3, MP4 |
| Apply research and analytical skills to evaluate the condition s and motivations that lead to conflict, cooperation, and change among individuals, groups, and nations. | SCI.3.4.9-12.B | MP2, MP4 |
| Analyze and interpret how issues, trends, technologies, and policies impact agricultural, food, and environmental systems and resources. | SCI.3.4.9-12.C | MP1, MP2  MP3, MP4 |
| Apply research and analytical skills to systematically investigate the environmental issues ranging from local issues to those that are regional of global in scope. | SCI.3.4.9-12.D | MP1, MP3 |
| Evaluate and communicate the effect of integrated pest management practices on indoor and out door environments. | SCI.3.4.9-12.F | MP2, MP4 |
| Analyze and evaluate how best resource management practices and environmental laws achieve sustainability of natural resources. | SCI.3.4.9-12.G | MP2, MP4 |
| Design and evaluate solutions in which individuals and societies can promote stewardship in environmental quality and community well-being. | SCI.3.1.9-12.H | MP2, MP4 |
| Analyze and interpret data on a regional environmental condition and its implications on environmental justice and social equity. | SCI.3.1.9-12.I | MP2, MP4 |
| Explain the consequences of interrupting natural cycles. | ECL.10.4.1.10.B | MP1, MP3 |
| Evaluate the efficiency of energy flow within a food web. Describe how energy is converted from one form to another as it moves through a food web (photosynthetic, geothermal). | ECL.10.4.1.10.C | MP1, MP3 |
| Analyze the relationship between habitat changes to plant and animal population fluctuations. | ECL.10.4.1.10.Da | MP1, MP3 |
| Describe how topography influences the flow of water in a watershed. | ECL.10.4.2.10.A.a | MP1, MP3 |
| Describe how vegetation affects water runoff. | ECL.10.4.2.10.A.b | MP1, MP3 |
| Investigate and analyze the effects of land use on the quality of water in a watershed. | ECL.10.4.2.10.A.c | MP1, MP3 |
| Examine how human interactions impact wetlands and their surrounding environments. | ECL.10.4.2.10.B | MP1, MP3 |
| Analyze how agricultural sciences and technologies strive to increase efficiency while balancing the needs of society with the conservation of our natural resources. | ECL.10.4.4.10.C | MP1, MP3 |
| Evaluate the use of technologies to increase plant and animal productivity. | ECL.10.4.4.10.D | MP1, MP3 |
| Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions. | LA.CC.3.5.9-10.A | MP1, MP2  MP3, MP4 |
| Determine the central ideas or conclusions of a text; trace the text’s explanation or depiction of a complex process, phenomenon, or concept/ provide an accurate summary of the text. | LA.CC.3.5.9-10.B | MP2, MP4 |
| Follow precisely a complex multistep procedure carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text. | LA.CC.3.5.9-10.C | MP1, MP3 |
| Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to 9-10 texts and topics. | LA.CC.3.5.9-10.D | MP1, MP2  MP3, MP4 |
| Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table of chart) and translate information expressed visually or mathematically (e.g., in an equation) into words. | LA.CC.3.5.9-10.G | MP1, MP2  MP3, MP4 |
| Asses the extent to which the reasoning and evidence in a text support the author’s claim or a recommendation for solving a scientific or technical problem. | LA.CC.3.5.9-10.H | MP1, MP2  MP3, MP4 |
| Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts. | LA.CC.3.5.9-10.I | MP2, MP4 |
| Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. | LA.CC.3.6.9-10.B | MP1, MP2  MP3, MP4 |
| Conduct short as well as more sustained research projects to answer a question (including a self-generate question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation. | LA.CC.3.6.9-10.G | MP2, MP4 |
| Draw evidence from informational texts to support analysis, reflection, and research. | LA.CC.3.6.9-10.H | MP1, MP2  MP3, MP4 |

**ASSESSMENTS**

**PDE Academic Standards, Assessment Anchors, and Eligible Content: The** teacher must be knowledgeable of the PDE Academic Standards, Assessment Anchors, and Eligible Content and incorporate them regularly into planned instruction.

**Formative Assessments:** The teacher will utilize a variety of assessment methods to conduct in-process evaluations of student learning.

**Effective formative assessments for this course include:** Bell ringers, exit tickets, notice and wonderings, progress checks, quizzes, lab assignments, teacher questioning, class discussions, peer assessments, model trackers

**Summative Assessments: The** teacher will utilize a variety of assessment methods to evaluate student learning at the end of an instructional task, lesson, and/or unit.

**Effective summative assessments for this course include:** Lab reports, CER responses, chapter tests, assessments, culminating tasks, projects.